POWERTECH (USA) INC.

July 2, 2014

Mr. Stan Michals
Energy and Minerals Coordinator
Wildlife Division
South Dakota Game Fish & Parks
4130 Adventure Trail
Rapid City, SD 57702

VIA EMAIL

RE: 2013 Wildlife Monitoring Report and Status Update for the Dewey-Burdock Project

Dear Mr. Michals:

Please find enclosed the 2013 Wildlife Monitoring Report prepared by Thunderbird Wildlife Consulting, Inc. (TWC) for the Dewey-Burdock Project. Your review of the report for general acceptability of scope would be appreciated.

With regard to the status of the Dewey-Burdock Project, the U.S. Fish and Wildlife Service continues to review Powertech's January 2014 non-purposeful take permit. Once completed, TWC will finalize an avian research plan and present it to the Secretary for review; a copy of which will also be provided to you.

Upon approval of the research plan by the Secretary, the Avian Monitoring and Mitigation Plan (Avian Plan) will be finalized, including incorporation of the research plan, and subsequently presented to you for comment. The objective of the Avian Plan, you may recall, is to satisfy a condition of the Dewey-Burdock Draft Large Scale Mine Permit.

Thank you in advance for reviewing the enclosed report. Your assistance and guidance with respect to wildlife protection at the Dewey-Burdock Project is much appreciated. Please do not hesitate to contact Gwyn McKee at 307-689-5571 or me at 303-790-7528 with questions.

Sincerely,

Lisa Scheinost

Lisa Scheinost
Licensing & Environmental Compliance Engineer

5575 DTC Parkway, Suite 140
Greenwood Village, CO 80111 USA
Telephone: 303-790-7528
Facsimile: 303-790-3885
Website: www.powertechuranium.com
Email: info@powertechuranium.com

Enclosure: 2013 Wildlife Monitoring Report

cc: J. Mays (Email)
G. McKee (Email)
M. Cepak (Email)
E. Holm (Email)
J. Fritz (Email)
R. Burrows (Email)

5575 DTC Parkway, Suite 140
Greenwood Village, CO 80111 USA
Telephone: 303-790-7528
Facsimile: 303-790-3885
Website: www.powertechuranium.com
Email: info@powertechuranium.com

2013 Wildlife Monitoring

Dewey-Burdock Project

Prepared For:

Powertech (USA) Inc.

5575 DTC Parkway, Suite 140

Greenwood Village, CO 80111-3012

Prepared By:

Thunderbird Wildlife Consulting, Inc.

5303 Van Ripper Street

Gillette, WY 82718

July 2014

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1.0 INTRODUCTION

Powertech (USA) Inc. (hereafter, Powertech) has proposed to develop *in situ* recovery (ISR) operations for uranium resources located in Custer and Fall River counties in southwestern South Dakota; i.e., the Dewey-Burdock Project. Biologists with ICF Jones & Stokes (currently ICF International, Inc. [ICF]) collected baseline wildlife information for the Dewey-Burdock Project from July 2007 through early August 2008. From August 2008 through the 2012 breeding season, supplemental data for nesting bald eagles (*Haliaeetus leucocephalus*) in the permit area were collected incidentally during other field work conducted by Powertech and annual site visits from South Dakota Game, Fish and Parks staff (SDGFP, S. Michals). The baseline wildlife report from Powertech's original Large Scale Mine Permit Application (Powertech 2012) is on file with SDGFP as Appendix 3.9-A (Baseline Wildlife Report).

In 2013, biologists with Thunderbird Wildlife Consulting, Inc. (TWC, formerly ICF Jones & Stokes, and Powder River Eagle Studies) began annual wildlife monitoring at the Dewey-Burdock Project as part of Powertech's voluntary efforts in preparation for future permitted activities. The annual wildlife monitoring efforts are part of a comprehensive avian monitoring and mitigation program being developed for Powertech in collaboration with SDGFP, SD Department of Environmental and Natural Resources (SD DENR), and the SD Ecological Services office of the U.S. Fish and Wildlife Service (USFWS) to comply with draft SD DENR conditions of the company's Large Scale Mine Permit (SD DENR 2013) and wildlife monitoring commitments made by the company in its Dewey-Burdock Environmental Report (Powertech 2009). The permit area, survey methods, and results of wildlife monitoring from the 2013 report period (December 2012 through November 2013) and previous years are described below. The report period is designed to encompass a complete cycle of surveys beginning in winter and ending the following fall.

2.0 PERMIT AREA DESCRIPTION

The Dewey-Burdock permit area is located approximately 13.0 miles north-northwest of Edgemont, SD, near the southwestern extent of the Black Hills. The permit area spans northern Fall River County and southern Custer County in southwestern South Dakota; its northwestern edge abuts the state border with Wyoming. The permit area includes approximately 10,580 contiguous acres of mostly private surface and encompasses all or portions of Sections 1-5, 10-

12, and 14-15, Township (T) 7 South (S):Range (R) 1 East (E) and Sections 20-21 and 27-35, T6S:R1E (Figure 1).

The elevation within the permit area ranges from approximately 3,600 feet to 3,900 feet above mean sea level, with the highest elevations along the pine breaks that overlap the eastern boundary. Topography in the western portion of the permit area consists primarily of gently rolling hills, with more varied terrain in the pine breaks and dissected hills found in the eastern portion.

The permit area is comprised of a mosaic of shrublands, grasslands, and woodlands in approximately equal proportions, though they are not equally distributed across the area. Upland grasslands and shrublands are more common in the northern and western portions of the permit area; the largest individual parcels are dominated by upland grasslands. Woodlands dominate the higher elevation hilltops and breaks in the central and eastern portions. Smaller percentages of other habitats including, but not limited to, agricultural lands, previously disturbed areas, and treed riparian areas also are present.

The vegetative communities within the permit area are characterized by species common to southwestern South Dakota. Shrublands are comprised primarily of big sagebrush (*Artemisia tridentata*) and black greasewood (*Sarcobatus vermiculatus*). Upland grasslands are dominated by native warm season, perennial species such as blue grama (*Bouteloua gracilis*) and buffalograss (*Buchloe dactyloides*). Native cool season perennial grasses also occur in the area, including western wheatgrass (*Agropyron smithii*) and threadleaf sedge (*Carex filifolia*), among others. Introduced annual grasses such as crested wheatgrass (*Agropyron cristatum*), Japanese brome (*Bromus japonicus*), and cheatgrass (*B. tectorum*) also are found in the area.

Trees are present along the riparian corridors of two primary creeks and on the higher elevation hilltops in the permit area. The plains cottonwood (*Populus deltoides*) is the only species present along the creek channels; cottonwoods are most prevalent in the Pass Creek corridor. Ponderosa pine (*Pinus ponderosa*) dominates the higher elevation hilltops and breaks in the north-central and eastern portions of the permit area, with Rocky Mountain juniper (*Juniperus scopulorum*) present as individual trees or small inclusions in some of the dry drainages.

Four black-tailed prairie dog (*Cynomys ludovicianus*) colonies totaling approximately 554 non-contiguous acres occur within the Dewey-Burdock permit area (Figure 1). Three

additional colonies (approximately 441 non-contiguous acres) are present within the 1.0-mile perimeter.

The two principal drainages in the permit area are Beaver Creek and Pass Creek. Beaver Creek is perennial (i.e., year-round) and flows northwest to southeast through the western portion of the permit area. Pass Creek is considered intermittent overall, but is ephemeral (i.e., responds only to rainfall or snow-melt events) where it flows north to south through the permit area. Pass Creek joins Beaver Creek just south of the permit area, and Beaver Creek flows into the Cheyenne River approximately 3.0 miles south of that confluence. Several stock dams and historical mine pits are located in the permit area. Many of the impoundments contain water only temporarily following precipitation events or snow melt. No known natural springs exist within the permit area.

The permit area is predominately (97.7%) privately owned, with the remaining 2.3% managed by the Bureau of Land Management (BLM). Land use in the area includes ranch lands managed primarily for livestock grazing (mostly cattle along with a few horses), with limited areas irrigated for hay production along Beaver Creek. Existing infrastructure within the permit area includes the Burlington Northern-Santa Fe railroad that runs through the area, South Dewey Road (County Road 6463) that parallels the railroad, several gravel and unimproved (two-track) roads that pass through the permit area and surrounding perimeter, overhead power lines, occupied and unoccupied residences, older outbuildings, and some historical mine pits in the eastern portion of the permit area.

No big game crucial habitats or migration corridors are recognized by the SDGFP in the Dewey-Burdock survey area. Additionally, no critical habitat for federally listed species, or special habitat areas (e.g., "core population areas") for the greater sage-grouse (*Centrocercus urophasianus*, hereafter, sage-grouse), have been designated in the Dewey-Burdock permit area or 1.0-mile perimeter.

3.0 METHODS

The annual monitoring program is designed primarily to track avian species that could be affected by future mine operations, and the main terrestrial prey species for local raptors. Therefore, specific surveys for species such as big game, upland game birds, and other species not targeted by current annual monitoring objectives or confirmed as absent from the survey area

(e.g., sage-grouse) are not required and were not conducted as part of the annual wildlife monitoring efforts. All wildlife monitoring was conducted by qualified TWC biologists; that company is an approved contractor by the SDGFP (see Section 5.0). Biologists recorded all wildlife observed during each site visit conducted during the report period (December 2012 through November 2013), including notes on species, number of individuals, general location, habitat, and other pertinent information (e.g., sex, age), when possible.

Because mine construction and operations have not yet begun, some monitoring efforts were not conducted during the 2013 report period, including recording distances between intact non-eagle raptor nests and regular disturbance (e.g., vehicular traffic, ranching operations, rail traffic, etc.), lagomorph spotlight surveys, and clearances for ground-nesting raptors. Those surveys are currently scheduled to begin in 2014 or when mine-related activities warrant.

3.1 Raptors

3.1.1 Bald Eagle Winter Roosts

Three ground surveys for bald eagle winter roost sites (i.e., overnight perch sites) were conducted once per month from December 2012 through February 2013, in keeping with current protocols used throughout the region (Powder River Basin Wildlife Task Force 2005): December 21, 2012; January 23, 2013; and February 12, 2013. Surveys encompassed the permit area and accessible portions of the 1.0-mile perimeter. A biologist conducted the searches by slowly driving through the survey area and stopping often to scan all mature trees using binoculars and a spotting scope.

All surveys were conducted from 30 minutes before to 1 hour after sunrise or from 1 hour before to 30 minutes after sunset, and during favorable weather conditions (i.e., no precipitation, light winds) to maximize eagle detection and observer safety. Survey efforts included a combination of morning and evening searches to maximize the opportunity for observing eagles. In addition to specific searches, all incidental bald eagle sightings within the survey area were recorded throughout the annual report period. All sightings of perched and flying bald eagles were recorded, including notes on the number of birds, age, location to quarter-quarter section, habitat, and activity. Observations of concentrated prey and/or large carcasses that might attract eagles also were noted.

Bald eagle winter roost sites were visually marked on a 1:24,000 topographic map during the surveys. The actual location of roost tree(s) was recorded later using a hand-held Garmin® Etrex global positioning system (GPS) receiver when eagles were absent from the location. Data points were recorded in Universal Transverse Mercator (UTM) coordinates using the grid system for North American Datum (NAD) 83, Zone 13 North.

3.1.2 Raptor Nesting Surveys

TWC began annual monitoring for nesting raptors at the Dewey-Burdock Project in 2013. The raptor survey area included the permit area and its 1.0-mile perimeter for bald eagles (Figure 1), with a 0.5-mile perimeter used for other raptor species. The latter distance represents the greatest buffer typically recommended for non-eagle nests and is the standard monitoring buffer recommended by the SDGFP. Nesting raptors also were monitored during baseline surveys completed in 2008; those historic results are included in this report for reference. Due to the special interest in nesting bald eagles and the current voluntary nature of annual monitoring, the focus in 2013 was on the western (Dewey) portion of the permit area, though previously identified nests were checked throughout the entire survey area.

3.1.2.1 Bald Eagles

Two bald eagle nests within a single territory (BE1) have been identified in the Dewey-Burdock survey area (permit and 1.0-mile perimeter for this species). Powertech established a staked 0.5-mile buffer early in the nesting season (i.e., nest maintenance beginning, prior to egg laying) to clearly mark a "no access" area surrounding the BE1b nest tree. Access and activities within that buffer were prohibited for all staff, visiting agency personnel, and biological monitoring for the duration of the breeding season. Quarterly water sampling within that buffer also was suspended in March 2013, and remained so through the duration of the 2013 report period.

The BE1 territory was monitored for general activity in conjunction with winter bald eagle roost surveys conducted from December 2012 through February 2013. Targeted observation sessions for the active territory were scheduled as follows, as permitted by weather and/or travel conditions:

- 3-week intervals between January 15 and February 28 (overlapping with roost surveys) (nest building period);
- 2-week intervals between March 1 and July 31 (egg-laying through fledging); and
- 3-week intervals between August 1 and November 30 (non-breeding season).

Supplemental monitoring was conducted in 2013 as follows:

- weekly from mid-June through mid-July in an effort to accurately determine when fledging occurred;
- 1- to 2-week intervals through mid-August in conjunction with other field work to determine when the fledged juvenile eagle left the nest area so other work such as mapping the nearby prairie dog colony could be completed without breaching the 0.5-mile restricted buffer around the active nest; and
- as soon as practicable following severe weather that could affect the active bald eagle nest, when such weather occurred between scheduled observation sessions.

Powertech personnel, other contractors, and SDGFP staff also recorded general observations regarding bald eagle presence/absence, etc. during their occasional site visits to provide supplemental data when a TWC biologist was not present.

Observation sessions and supplemental nest monitoring were conducted using binoculars and a spotting scope (with zoom feature) from a stationary vehicle parked at vantage point(s) that allowed observations to occur without impacting normal nesting behaviors. Observations conducted in 2013 occurred outside a 0.5-mile buffer as required by the USFWS and SDGFP. The nest area and adults were monitored for 2 to 4 hours during each observation session in an effort to define the pair's home range, document existing disturbance activities and the eagles' response to those activities, and to help develop protective guidelines to be used when operations commence in the future.

Other monitoring and reporting tasks will occur as needed during the life of the mine to maintain a current database in the wildlife survey area, such as: mapping potential bald eagle nesting habitat within the permit area and 1.0-mile perimeter to identify natural alternate nesting habitat and potential sites for artificial nesting platforms; and mapping new winter roost sites.

3.1.2.2 Other Nesting Raptors

Monitoring of all known raptor nest sites and searches for new nests of raptor species other than bald eagles were conducted within the permit area plus an additional 0.5-mile perimeter. All nest sites identified during the 2008 baseline inventory were checked at least once during the 2013 breeding season to determine their current condition (intact, former) and status (active, inactive, alternate). During all field work, guidelines recommended by Rosenfield et al. (2007) were followed to prevent nest abandonment and injury to eggs or young.

Nests of early-nesting species, such as great horned owls (*Bubo virginianus*), were first checked in February and March 2013. Known nests of other species were first inspected for activity during March and April. Early in the breeding season, nests were monitored from a distance with the aid of binoculars and a spotting scope. Nests were not approached until late April for owls, and June for other species to avoid impacting active nest sites.

Searches for new nest sites were conducted according to the nesting chronology of each raptor species, with an overall range of mid-February through June 2013. Biologists searched for new nests by slowly driving through the survey area on existing roads and two-tracks, and frequently stopping to examine typical nesting habitat using binoculars and a spotting scope. Rough breaks and tree stands were searched on foot, but those efforts did not begin prior to late May or early June to minimize potential impacts on nesting raptors. Personnel also watched for adult raptors while conducting all other surveys. Areas where individuals or pairs were repeatedly seen, or where defensive behavior was observed, were thoroughly searched for nests.

Active nests were monitored for current status and productivity at approximately 2- to 3-week intervals during the breeding season, in conjunction with bald eagle observation sessions. Additional monitoring was conducted as soon as practicable following severe weather. All active nests were monitored until the pair's breeding attempt failed or young fledged.

All intact raptor nests were mapped both visually and using a hand-held GPS receiver. The status of nests and production of young at active nests were recorded. All historic (baseline) and recent (2013 monitoring) nest sites are depicted on Figure 1.

3.1.3 Prey Species

All prairie dog colonies within the permit area and 1.0-mile perimeter were mapped on the ground. Colonies in the western (Dewey) portion of the survey area were mapped in August

2013, after pups had begun dispersing from their natal colonies and after the BE1b eaglet left the nest area (for that proximate colony). Colonies in the eastern (Burdock) region were mapped in February 2014 to complete the dataset for this report. Biologists mapped colonies by walking their perimeters and recording locations along their outer-most boundaries using a hand-held GPS receiver. Those data were downloaded into a geographic information system (GIS) program that plotted the outer perimeter of each colony. In addition, biologists noted whether or not each colony was active at the time it was mapped. Any known eradication efforts at these colonies during the year also were documented. After the breeding season, biologists also examined prey remains below the active bald eagle nest in an effort to determine if other prey species were being utilized by nesting eagles in the survey area.

3.2 Other Species of Concern

During each site visit, biologists watched for all state and federal species of concern, such as listed species and those tracked by the SD Natural Heritage Program (SDNHP). Data collected for each observation included notes on species, number of individuals, location, habitat use, sex/age (when possible), and activity.

3.2.1 Federal and State Threatened and Endangered Species

Six species are currently listed or involved in the federal listing process under the Endangered Species Act (ESA) for the general vicinity of the Dewey-Burdock survey area (USFWS 2014). Three of the six species are listed for both Custer County and Fall River County: red knot (*Calidris canutus rufa*)(proposed threatened), Sprague's pipit (*Anthus spragueii*) (candidate), and northern long-eared bat (*Myotis septentrionalis*)(proposed endangered). The whooping crane (*Grus americana*) (endangered) and black-footed ferret (*Mustela nigripes*) (endangered) are listed only for Custer County, and the sage-grouse is identified only for Fall River County. The bald eagle is the only state listed terrestrial vertebrate species ever documented in the survey area.

Targeted surveys for ESA species were not required and/or conducted because: 1) the USFWS has issued a block clearance for the species in the survey area; USFWS range maps show the species does not occur in the survey area; the documented absence of the species in the survey area by the SDGFP; additional range and/or habitat considerations; the timing of the

listing status after the primary field season; and/or the lack of disturbance in habitats associated with those species. Nevertheless, biologists watched for these species (including endangered, threatened, candidate, proposed, and petitioned species) in habitats that could support them while conducting other surveys. Any sightings recorded included notes on the species, number of individuals, age and sex (if possible), location, habitat, and activity. Surveys for the state listed bald eagle are described in Section 3.1 of this report. Biologists also watched for other state listed species during each site visit and recorded the same information for any sightings.

3.2.2 SDNHP Rare, Threatened, or Endangered Species

Monitoring of terrestrial vertebrate species tracked by the SDNHP was conducted in conjunction with other wildlife surveys in 2013 and included the permit area and 1.0-mile perimeter. Biologists recorded any such species encountered during the report period. Searches in specific habitat types such as creek channels and prairie dog colonies were conducted if those habitats were not already covered by other monitoring efforts. All sightings were recorded, including notes on species, number of individuals, location, habitat, and activity.

3.3 Other Animals

Incidental sightings of animals not targeted by systematic searches were recorded during all wildlife surveys conducted in 2013.

4.0 RESULTS

As noted, the Dewey-Burdock survey area (permit area and 0.5- to 1.0-mile perimeter, by species) does not overlap any big game crucial habitats or migration corridors, critical habitats for federally listed species, or known sage-grouse use areas. Crucial range is defined as any particular seasonal range or habitat component that has been documented as the determining factor in a population's ability to maintain and reproduce itself at a certain level. A general record of presence/absence of various vertebrate species is provided in Appendix I.

Because this is the first annual report for the Dewey-Burdock project, historical data from the 2007-2008 wildlife baseline inventories are discussed to provide some historical context, where possible. However, those data may not be included in subsequent annual reports once the current context is established.

4.1 Raptors

4.1.1 Bald Eagle Winter Roosts

All historic (2008 baseline) and recent (2013 monitoring) bald eagle winter roost sites are depicted on Figure 1. Seven roost sites have been identified to date: four during baseline surveys and three more during the 2013 report period. Sites added in 2013 included: the trees immediately southwest of the active BE1b nest tree in NENE Section 31, T6S:R1E; a tree in SWNE 31, T6S:R1E; and the small tree windbreak near an old corral area in SWNW 30, T6S:R1E.

Bald eagles are currently listed as threatened in South Dakota. Eagles were documented in the survey area (permit area and 1.0-mile perimeter) during two of the three winter roost surveys conducted during the current report period. Two adults were seen perched in the tree windbreak near the old corrals on December 21, 2012. Two adult bald eagles were observed again on February 12, 2013; one bird was perched in a tree near the BE1b nest tree and the other was seen flying southeast of the nest area. One sub-adult bald eagle was recorded later that morning, after the survey window, perched in the BE1b nest tree. The two adult eagles observed during the roost surveys were assumed to be the resident BE1 pair.

All historic and current winter roost sites are associated with Beaver Creek and/or the BE1 territory (Figure 1). The trees adjacent to the active BE1b bald eagle nest also were used as regular day perches throughout the 2013 breeding season. Historic and recent bald eagle sightings during winter roost surveys typically consisted of one to three eagles on any given occasion.

4.1.2 Raptor Nesting Surveys

4.1.2.1 Bald Eagles

<u>Nesting Activities</u>

Two bald eagle nests were identified in the survey area through 2013: nests BE1a and BE1b (Figure 1). That numbering system represents the original nest site and an alternate nest constructed in the same territory in approximately 2011, respectively. Both nests are in mature, dying cottonwoods along or near Beaver Creek in the western portion of the permit area. The nests are not quite 0.7 mile apart and within view of each other.

Nest BE1a fledged one young in 2008, but the nest was not active the following year. Powertech did not regularly monitor the nest site in 2010 or 2011, as project activities were quite limited during that period. However, company personnel did observe bald eagles in nest BE1a on at least one occasion in 2010. Powertech personnel first saw bald eagles in nest BE1b during an alluvial drilling program that was conducted in early May 2011. SDGFP personnel also observed the bald eagles in nest BE1b around this time period. Powertech personnel reported bald eagles in nest BE1b again in 2012. Observations made by Powertech personnel from 2010 through 2012 were limited to noting isolated sightings of adult bald eagles in a nest; no records were kept regarding whether young fledged from either nest site during that period.

The BE1 pair was active again in 2013 and fledged one young from nest BE1b (Map 1). Adult eagles were noted in the BE1 nest area by Powertech personnel on several occasions in January and February 2013. A TWC biologist observed the eagle pair forming the nest cup on March 6, and an adult was seen incubating at the nest on March 17. No ground surveys were conducted in April due to persistent inclement weather and/or impassable roads. The Dewey-Burdock area and surrounding region experienced 4 consecutive weeks of severe snow storms followed by repeated heavy rain, wind, and hail storms throughout the spring.

An aerial survey was conducted on April 15, and an adult eagle was observed prone on the nest. Another aerial survey was completed on May 2, and an adult appeared to be brooding at least one downy chick at that time. TWC biologists estimated that the eaglet hatched between April 19 and 27. By June 5, the eaglet was fully feathered and eating on its own. Later that month, it began exercising its wings by hopping and flapping while on the nest, and was able to hover above the nest for brief periods by early July. The juvenile eagle fledged (first documented flight) on July 9, when it left the nest and flew to a perch in a nearby tree. All three bald eagles (adults and fledged young) were observed in the nest area through the end of July. However, no eagles were seen there during the next observation session in mid-August.

Due to the absence of bald eagles in mid-August, a biologist walked out to the BE1b nest tree to record its exact location with a hand-held GPS unit to ensure accurate mapping. The biologist also examined prey remains below the nest. Those remains consisted primarily of prairie dog bones, though a few bones from channel catfish (*Ictalurus punctatus*) also were found. A TWC biologist saw the adult pair perched in a tree along Beaver Creek approximately 0.75 mile southeast of the BE1b nest on October 2, but the juvenile eagle was not observed.

Powertech or TWC staff checked the territory daily from October 17 through 19 during other project work, but no bald eagles were seen during those visits.

Home Range

Biologists noted areas utilized by the bald eagles during each survey and observation session conducted throughout the 2013 report period to begin to identify the home range for the BE1 pair. When they were within view, all sightings occurred within 1.0-1.5 miles of the active BE1b nest tree; that area corresponds roughly with the winter roost sites and prairie dog colony near the nest shown on Figure 1. At times, one or more of the resident eagles were not seen in the nest area. During the breeding season, the adults were most often seen perched in the cottonwoods located adjacent to or within 0.5 mile of the active nest tree. One or both adults also were recorded perched on the bank of Beaver Creek in SWSW Section 32 and NW Section 31, T6S:R1E on a few occasions, particularly during the early part of the breeding season. During one observation session in July, the male was observed landing on the edge of a full stock tank in SENW Section 32, T6S:R1E; the eagle drank from and bathed in the tank. The female was recorded perched in the original BE1a nest tree in late July after the eaglet had fledged. As noted, both adults were seen perched in a tree along Beaver Creek in early October.

The adult bald eagles were seen soaring over the prairie dog colony that spans Sections 29 and 30, T6S:R1E just north of the active BE1b nest tree several times throughout the 2013 breeding season. In late March, an adult was recorded eating prey while perched in a tree near the active BE1b nest soon after it had been soaring over the colony, though the actual capture of prey was not observed. On June 5, the female was observed landing in the colony, then carrying prey (presumably a prairie dog) back to the nest. As noted, prairie dog remains were found under the active nest after the eagles left the nest area in late summer.

During some observation sessions in June and July, the resident pair was seen flying south of the breeding area before drifting out of view. Prior to the breeding season, an adult was documented flying northeast out of the nest area toward SW Section 20, T6S:R1E. Given the presence of fish remains under the nest and the location of the Cheyenne River relative to the survey area, it is possible that the eagles were hunting the river during some periods when they were not visible. No known fisheries are present in the northwestern portion of the survey area, but the eagles apparently venture in that direction on occasion.

Disturbance Monitoring

In addition to monitoring the development of the eaglet and collecting information regarding the adult pair's home range, biologists recorded activities that occurred within the BE1 territory in an effort to begin to document the pairs' reaction to, or tolerance of, existing forms of disturbance.

Existing activities in the permit area consist primarily of ranching operations such as year-round livestock grazing (mostly cattle along with a few horses). Limited areas of irrigated hay fields also are present along Beaver Creek immediately west and within 60 feet of the BE1a nest site, and approximately 0.3 mile south of the BE1b nest site. Ranching operations entail: regular light duty traffic (pickup trucks and all-terrain vehicles [ATVs]) to monitor, feed, and move livestock; seasonal haying operations (irrigating, cutting, raking, baling, hauling); and foot traffic to monitor and adjust irrigation head gates along Beaver Creek, repair fences, move cattle, and conduct other typical ranching activities. The BE1 nest area also is immediately adjacent to a SDGFP walk-in hunting area that allows pedestrian access to the hunting public throughout the territory; one boundary for the walk-in area is less than 300 feet east of the BE1b nest tree. Limited monitoring of air quality samplers and water wells, and regular biological monitoring from inside a stationary vehicle, also occurred outside the 0.5-mile buffer for the BE1b nest (most recently active) in 2013. As indicated, ranching activities occur immediately below or adjacent to both nest sites and some winter roost sites throughout the year, with the same access to walk-in hunters during spring and/or fall hunting seasons. Therefore, the BE1 pair is currently exposed to year-round light duty vehicular traffic and limited pedestrian traffic well within the 0.5-mile buffer around nest and roost sites.

Existing infrastructure within the bald eagle nest and roost areas includes the Burlington Northern-Santa Fe railroad that runs roughly north-south through the permit area, South Dewey Road (County Road 6463, gravel) that parallels the railroad, several gravel and unimproved (two-track) roads that pass through the permit area and surrounding perimeter (including within 207 to 348 feet of the bald eagle nest sites), overhead power lines, one occupied residence, and some older abandoned home sites and out buildings. The railroad and gravel county road are approximately 1.3 miles and 0.9 mile northeast of the BE1a and BE1b nests, respectively; as indicated, the more recently used BE1b nest tree is closest to those features. Most, if not all, of these existing activities are within view of both bald eagle nests.

The most common disturbance activity in the bald eagle territory during the 2013 breeding season was train traffic on the railroad. Trains were documented traveling through the area consistently throughout the breeding season. Typically, two to five trains were noted during the 4-hour observation periods conducted in June and July, with approximately 4 to 8 minutes per train between entering and leaving line-of-sight of one or both eagle nests. The adult eagles and eaglet gave no response to train traffic throughout the season. That is, the eagles did not make any obvious changes in their behavior, body position, level of activity (alertness), or otherwise indicate any signs of distress, discomfort, or even awareness (at times) during these regular disturbances, though any more subtle responses such as slightly lifting up off eggs in consideration of departure, etc. would have been impossible to detect from the required 0.5-mile monitoring distance in place during 2013. Regular, but low volume, vehicle traffic on the county road alongside the railroad also occurred during the observation sessions, and also elicited no obvious response from the eagles. As noted, all biological monitoring occurred from a stationary vehicle parked at least 0.5 mile from the active nest during the breeding season, and the eagles showed no obvious response to that periodic presence. Haying and ranching operations occurred near the BE1a and/or BE1b nest at times during the breeding season, though these activities occurred when biologists were not present so no precise data are available for those circumstances.

Two disturbances within the 0.5-mile buffer were documented by TWC during the 2013 breeding season. Both occurred under the presumption of following agency consensus regarding acceptable activities near the active nest, though that was later clarified to reinforce the 0.5-mile buffer for non-ranching activities during the breeding season. On both days, a TWC biologist monitored the BE1 pair before, during, and after each activity, and had "stop work" authority to end the activities prematurely if the nesting pair exhibited signs of distress that might endanger the chick by leaving it exposed to the elements or putting it at risk of accidentally being pushed from the nest. Examples of such distress signs might have included rushing to leave the nest, circling above the nest while giving distress calls, going to the chick to "defend" it, general restlessness, calling for the mate while perched, or similar behaviors.

On February 12 (prior to both regular nest maintenance and egg-laying), Powertech personnel and a contractor collected water samples at two well sites near the BE1a and BE1b nest trees. The DC1 well is approximately 0.35 mile northwest and beyond view of the BE1a

nest tree; it is well outside the 0.5-mile buffer for BE1b. The DC3 well is approximately 0.26 mile west and within view of the active BE1b nest tree, and 0.44 mile southeast and in view of the alternate BE1a nest tree. Both sites were sampled between 0935 and 1025 hours (including travel time to/from sites).

On May 6, a pair of Tribal members conducted a pedestrian search for properties of religious and cultural significance within the nest buffer. The search occurred after the eaglet was confirmed able to thermo-regulate; that confirmation was made by the behavior of the adults perching on the nest rim or on branches above the nest rather than brooding (covering) the chick, even during the cooler early morning hours. The survey occurred from 0947 to 1155 hours that morning, with the majority of the survey occurring near the outer edges of the 0.5-mile buffer or on the far side of a small knoll within the buffer, thus providing a visual barrier for the nest site during much of the time. The survey team was within 0-75 yards of the BE1b nest for approximately 10 minutes.

In both situations, the adult bald eagles exhibited an obvious tolerance for vehicle and foot traffic near the nest. During the February well sampling, the lone eagle present in the territory remained perched for 45 of the 50 minutes it took to access, sample, and leave the two well sites. It left its perch on two occasions: when the crew vehicles drove approximately 925 feet north of the BE1a tree on their way to the DC3 well (flying directly to the BE1b tree); and after perching in the BE1b tree for the first 20 minutes of the 25-minute sampling session at that well. During the DC3 sampling, the perched eagle was facing away from the work most of the time, occasionally looking back over its shoulder to watch the activities. It eventually flew northwest over the pine ridge and out of view a few minutes before the crew finished their work at the site. However, as the activities at the well had not changed prior to the bird's departure, and the bird gently left the perch and slowly flew away without circling in distress, the eagle's departure appeared unrelated to sampling efforts.

Following this sampling session, TWC advised Powertech to ensure that work crews consolidate their travel to as few vehicles as possible when traveling near the active nest and that they park their vehicles between the active nest and their sampling station to provide a partial visual barrier for the nesting eagles. Immediately following this effort, Powertech voluntarily suspended further sampling at the DC3 and DC4 (approximately 800 feet east of BE1b) wells

(both within 0.5 mile of the active eagle nest) to prevent possible impacts to the nesting eagles, so these recommendations were reserved for future reference.

At the time the pedestrian cultural survey began on May 6, both adults were perched on limbs above the BE1b nest, and the chick was napping in the nest. At least one adult remained perched in the nest tree for all but 10 minutes of the approximately 2-hour survey period. The perched eagle(s) appeared comfortable during the survey, with the male preening occasionally and the female sitting calmly. The female calmly left the nest tree approximately 10 minutes after the survey began and slowly flew west; the survey team was near the outer edge of the northeastern portion of the 0.5-mile perimeter at this time and was moving away from the nest, so the bird's departure appeared unrelated to their presence. The male remained perched in the nest tree, occasionally looking in the direction of the cultural team. The team approached within 50-75 yards of the nest tree approximately 1.5 hours after the survey began. The occasional preening behavior and lack of change in body position (i.e., remaining in a "normal" upright position rather than leaning forward preparing to take flight) indicated that the bird was comfortable with foot traffic within the buffer throughout the majority of the survey; they likely experience some level of foot traffic associated with local ranching and hunting activities near the nest site each year.

As the survey crew approached to within 50-75 yards of the nest tree, the male calmly left and soared widely over the general nest area for a few minutes. However, the eagle did not exhibit any defensive behaviors such as vocalizing to the female or rapidly circling the nest; bald eagles do not typically "dive" on intruders to physically defend the nest the way some other raptor species do. The male slowly drifted off to the northwest and the female gradually drifted back into the nest area from the west. The survey crew examined the ground immediately below the nest for 1-2 minutes, then moved west across Beaver Creek and walked northwest along the creek away from the nest tree. The chick did not stir in the nest during this entire period, and was presumably still sleeping. The female returned to the nest within 10 minutes of the male's departure, and while the crew was still walking along the creek near and in view of the nest. She gently landed on the edge of the nest and sat there shading the chick for approximately 35 minutes before moving up to perch on a limb above the nest, and otherwise behaved "normally" (i.e., no urgency to actions, no vocalizing or fussing with chick upon return to the nest, etc.).

The survey concluded and the crew left the 0.5-mile buffer approximately 30 minutes after the female returned to the nest.

Given the fact that the pair laid and successfully incubated eggs, the short time (5-10 minutes) that an adult was gone from the nest site (prior to egg-laying and post-hatching, respectively), the pair's obvious willingness to return to the nest soon after the greatest aspect of disturbance had left the immediate area, the lack of typical distress behaviors in both situations, and the fact that the eaglet eventually fledged from the nest, these activities did not result in a "take" of the eagle nest.

Two other activities of note were documented outside the 0.5-mile buffer during the 2013 breeding season. During the May 2 aerial survey, TWC observed a small group of Tribal representatives conducting a pedestrian search for properties of religious and cultural significance in the prairie dog colony north of the 0.5-mile nest buffer. An adult eagle was seen brooding the recently hatched eaglet in the BE1b nest at the time. Two pickup trucks were recorded driving in SW Section 30, T6S:R1E (south of the BE1a nest) on June 5, well outside the buffer for the active eagle nest. The adult eagle(s) remained perched in or near the nest tree during both situations.

4.1.2.2 Other Nesting Raptors

During baseline surveys completed in 2008, eight raptor nests were identified in or within 0.5 mile of the Dewey-Burdock permit area. Six new raptor nests were discovered in the survey area during 2013, for a total of 14 nest sites. Some nests present in 2008 were destroyed by natural causes prior to the resumption of monitoring in 2013. Consequently, 11 known nests remained intact within the raptor survey area as of August 2013. Nine of those intact nests were within the permit area and two were in the surrounding perimeter. Existing nests included:

6 red-tailed hawk (*Buteo jamaicensis*) nests;

2 bald eagle nests;

1 great horned owl nest;

1 unknown *Buteo* nest; and

1 burrowing owl (*Athene cunicularia*) nest site.

Details for all 14 raptor nest sites, and their histories in 2008 and 2013, are provided in Table 1. Nest locations are illustrated on Figure 1.

Six pairs of raptors were active in the Dewey-Burdock survey area during 2013, but only two pairs were successful (Table 1). One pair of bald eagles and one pair of burrowing owls each fledged young. Four pairs of red-tailed hawks each tended nests (added new material) but did not lay and incubate eggs. Details on nesting bald eagles in the survey area are provided in Section 4.1.2.1, above.

Annual productivity of raptors tends to fluctuate over time, but young fledged in both 2008 and 2013 (Table 2). The number of young fledged in the area during those years ranged from 3 to 5. The observed fluctuations in annual production are largely the result of natural factors such as nest site security, changes in prey abundance, and loss or failure of active nests due to inclement weather. For example, in April 2013, the Dewey-Burdock area and surrounding region experienced 4 consecutive weeks of severe snow storms followed by repeated heavy rain, wind, and hail storms throughout the spring that were known or likely to have affected raptor nesting efforts and production throughout the area that year. Because different species utilize different food resources (e.g., mice vs. rabbits) and have different reproductive potential (e.g., burrowing owls vs. bald eagles), trends in productivity are best considered on a species by species basis.

To date, red-tailed hawks have been the most active nesting raptor species in the Dewey-Burdock survey area (Table 2). During baseline surveys completed in 2008, two pairs of red-tailed hawks fledged a total of 3 young. In 2013, four pairs of red-tailed hawks tended nests, but no eggs were laid (Table 1). The extremely cold and wet spring that year likely affected raptor production in the Dewey-Burdock area. Three red-tailed hawk nests had been built since baseline surveys were completed: RTH3b, RTH4, and RTH5. The latter two were tended in 2013.

A great horned owl tree nest (GHO1) was discovered during baseline surveys conducted in 2008. One adult owl was seen in the nest cavity that year, but no young, feathers, droppings, or prey remains were observed in or below the nest tree. In 2013, a pair of great horned owls was observed in the GHO1 nest tree twice during the spring, but no evidence (accumulation of droppings, prey remains, etc.) of an active nest was found at the nest site. The GHO1 pair was the only pair of great horned owls observed in the Dewey-Burdock area in 2013. However, the secretive nature of these owls, which often nest in inconspicuous sites such as tree cavities or

along cliff faces, can potentially result in underestimation of annual nesting effort and production.

Burrowing owls were first recorded nesting in the Dewey-Burdock survey area in 2013. A pair of owls (BO1) nested in the prairie dog colony in the western portion of the permit area (Figure 1) and fledged at least two young that year (Table 1). On July 16, an adult owl and a fledgling were observed in the colony in E½ Section 30, T6S:R1E. A second fledgling owl was perched at the nest burrow, but no other young were seen. During a subsequent visit to the area in late July, no owls were observed in the colony but biologists discovered a pile of burrowing owl feathers north of the nest burrow. It appeared that one of the owls (age could not be determined) had been predated, possibly by a mammal.

Long-eared owls (*Asio otus*) were documented nesting in the permit area during baseline surveys conducted in 2008, and the pair produced at least one young that year (Table 1). During 2013, when raptor nest monitoring of the Dewey-Burdock area resumed, the LEO1 nest was found to be destroyed by natural causes. No long-eared owls were observed in the area that year.

A merlin (*Falco columbarius*) was recorded at a potential nest site in the pine breaks east of the permit boundary in 2008. The bird exhibited defensive behavior near the nest site that year, but no young or signs of active use (e.g., droppings, prey remains, egg shells, etc.) were recorded there. During renewed surveys in 2013, the nest had been destroyed by natural causes and no merlins were seen in the survey area.

4.1.3 Prey Species

Three black-tailed prairie dog colonies were documented during baseline surveys completed in 2008; one in the permit area and two in the surrounding 1.0-mile perimeter. Portions of all three colonies were inactive at that time. In 2013, seven black-tailed prairie dog colonies were present in the survey area (permit area and 1.0-mile perimeter), for a total of approximately 995 non-contiguous acres (Figure 1). Four of the colonies (554 non-contiguous acres) were within the Dewey-Burdock permit area and three (441 non-contiguous acres) were in the perimeter. All seven colonies were active early in the year, but one colony (approximately 32 acres) within the permit area was eradicated by the landowner that summer using a gassing pill called phostoxin (Figure 1). Local ranchers have historically used shooting and other

methods to control, reduce, and/or eradicate prairie dogs from the permit area and surrounding private lands. As noted, lagomorph spotlight surveys were not conducted in 2013.

4.2 Other Species of Concern

4.2.1 Federal and State Threatened and Endangered Species

4.2.1.1 Federal (ESA) Species

Six vertebrate species are currently listed or involved in the listing process under the ESA for the general vicinity of the Dewey-Burdock survey area (permit area and 1.0-mile perimeter): red knot; Sprague's pipit; northern long-eared bat; whooping crane; black-footed ferret; and sage-grouse (USFWS 2014). Only the knot, pipit, and bat are identified for both counties spanning the survey area. No plant species are currently involved in the listing process and no critical habitats for listed species have been defined for either of those counties (USFWS 2014).

No listed or candidate species under the ESA were observed in the Dewey-Burdock survey area during the year-long baseline inventory conducted from 2007-2008 or during the current report period (December 2012 through November 2013). As noted in Section 3.2.1, surveys for ESA species were not required and/or conducted during the 2013 report period due to the documented or likely absence in the survey area due to range and/or habitat considerations, and/or the lack of impacts to such species during the report period. Supporting summaries for each species are provided below.

Black-footed Ferrets (endangered) – Custer County

The USFWS issued a block-clearance for black-footed ferrets throughout most of South Dakota in recent years, including the Dewey-Burdock survey area in extreme southwestern Custer County and northwestern Fall River County (S. Larson, USFWS, personal communication to G. McKee, ICF Jones & Stokes, August 25, 2007). The only exceptions to that clearance are in areas where they have been reintroduced (USFWS 2013a). The clearance itself indicates that the USFWS does not believe that ferrets occur or are likely to occur in the Dewey-Burdock area, or anywhere else in the state other than reintroduction sites. Additionally, the project area is not in a current or potential reintroduction area for black-footed ferrets (USFWS 2013a).

Due to the block clearance, searches for black-footed ferrets were not part of the baseline wildlife survey requirements, and they are not part of the current annual monitoring requirements for this project, despite the presence of prairie dogs (potential prey) and their colonies (potential habitat) in the survey area. Although surveys have not been required for Dewey-Burdock, they were conducted in the general vicinity of the permit area during monitoring performed for the Tennessee Valley Authority (TVA) Draft Environmental Statement in fall 1977 (TVA 1979). No ferrets or evidence of their presence (e.g., trenching, tracks, or scat) were observed during those historic surveys, or incidentally during any subsequent wildlife surveys conducted in the region.

Whooping Crane (endangered) – Custer County

Four wild populations of whooping cranes have been identified in the world: three experimental populations and one natural population. Two of the experimental populations occur in Florida and only one of these is migratory, moving between Florida and Wisconsin. The third experimental population is non-migratory and is located in Louisiana. The natural population is the only one that is self-sustaining. This population winters along the Gulf Coast of Texas on the Aransas National Wildlife Refuge and breeds in the Wood Buffalo National Park in northern Alberta Canada and the adjacent Northwest Territories (USFWS 2012).

Numerous documents available on USFWS or biological websites document that whooping cranes have never been recorded in the Dewey-Burdock survey area. Examples of such documents are available at the following web addresses:

- http://ecos.fws.gov/docs/five_year_review/doc3977.pdf;
- http://www.fws.gov/migratorybirds/CurrentBirdIssues/SandhillCranes/FWCS.html; and
- http://www.birds.cornell.edu/AllAboutBirds/conservation/success/whooping_crane/document_view.

Northern Long-eared Bat (proposed endangered) – Custer and Fall River Counties

The USFWS issued a 12-month finding and proposed rule to list the northern long-eared bat as an endangered species in fall 2013 (78 Federal Register [FR] 61046; October 2, 2013). Critical habitat is not proposed at this time. The agency's proposed ruling for this species

occurred after the survey windows for breeding (June to July) and migration (August and September). Additionally, habitats important for this species (treed habitats on upper and middle slopes, caves, underground mines) are not likely to be disturbed during current monitoring activities or future mine-related activities in the survey area.

This medium-sized bat is found throughout eastern and central North America. Historically, northern long-eared bats are considered common in only small portions of the western part of its range (e.g., Black Hills of South Dakota) and uncommon or rare in the western extremes of the range (e.g., Wyoming, Kansas, Nebraska) (78 FR 61046). These bats roost predominantly in trees, though they are occasionally found in manmade structures. In the summer, male and reproductive female bats roost singly or in colonies in cracks, crevices, cavities, and under the bark of live and dead trees, while other males and non-reproductive females roost in cooler places like caves and underground mines. This species tends to roost more often on upper and middle slopes than lower slopes, which suggests a preference for higher elevations due to increased solar heating. Breeding occurs in late summer and fall when bats swarm at entrances of hibernacula, which also are typically located in large underground openings. Northern long-eared bats predominantly overwinter in hibernacula that include caves and abandoned mines. These hibernacula are typically large, with large passages and entrances, relatively constant, cooler temperatures (32 to 48 degrees Farhenheit), and with high humidity and no air currents.

Red Knot (proposed threatened) – Custer and Fall River Counties

This large sandpiper nests in the Arctic regions of Canada and winters mainly in southern South America (NatureServe 2014). During migration and overwintering, it is strongly associated with Atlantic coast regions of the United States and South America, as well as the west coast of Florida, especially where horseshoe crabs are abundant. This species is presumably listed for the Dewey-Burdock survey area due to the possibility for migrants to pass through the contiguous United States in spring and late summer. However, given their habitat and food requirements, this species is not expected to occur in the survey area with any regularity; no red knots have ever been documented in that area (NatureServe 2014, Ridgely et al. 2003 *in* NatureServe 2014).

Sprague's Pipit (candidate) – Custer and Fall River Counties

This small passerine is endemic to the Northern Great Plains and is strongly tied to native prairie throughout its life cycle (USFWS 2013b). This species typically breeds in larger (average parcel of 358 acres), well-drained, open grasslands with at least 75% cover in native species, grass height between 4 and 12 inches, few shrubs, and no history of cultivation.

Historically, the breeding range for the Sprague's pipit in the United States is believed to have encompassed most of North Dakota, northern and central Montana east of the Rocky Mountains, northern portions of South Dakota, northwestern Minnesota, possibly some small areas of extreme north-central and northwest Wyoming, and portions of western Canada (Sauer et al. 2012 *in* USFWS 2013b, Ridgely et al. 2003 *in* NatureServe 2014). However, based on the most recent Breeding Bird Survey 5-year analysis, this species' breeding range now excludes Wyoming, Minnesota, most of eastern North Dakota, much of South Dakota, parts of southern and western Montana, and portions of formerly occupied areas of Canada. The Sprague's pipit winters in portions of Texas, Arizona, Oklahoma, Arkansas, Mississippi, Louisiana, and northern Mexico. This species was previously identified as a passage migrant through southern South Dakota (NatureServe 2014, Ridgely et al. 2003 *in* NatureServe 2014). However, given its historic and current range information, the Sprague's pipit is not likely to occur in the Dewey-Burdock survey area.

Sage-grouse (candidate) – Fall River County

No sage-grouse (or grouse sign) were observed in the wildlife survey area during targeted grouse searches conducted as part of the baseline inventories completed in 2008, or incidentally during surveys for other species conducted in 2013. The absence of sage-grouse in that area is further documented by the SDGFP in their Greater Sage-grouse Management Plan for South Dakota for 2008-2017 (SDGFP 2008) (excerpt in *italics*, below).

> *Western South Dakota is considered the most easterly fringe of the sage grouse range in the United States (Appendix Figure 1). Because sage grouse are sagebrush obligate species, sage grouse are only found in areas where adequate sagebrush is available to meet habitat and biological needs. Within South Dakota, the vast majority of sage grouse are found in Harding and Butte counties, with incidental observations found in the western portions of Perkins and Meade*

County. Monitoring of a historical lek in Fall River County between Edgemont and the Wyoming border has resulted in only a few birds observed, none of which have been counted since 2006 and those were not counted on the historical lek.

The nearest known sage-grouse lek site is 5.0 miles west of the Dewey-Burdock permit area (in Wyoming), which is beyond even the broadest currently recommended buffer for occupied (active in at least 1 of the last 10 years) leks in the region (BLM 2011, Wyoming Executive Order 2011_5). The nearest lek in Fall River County is more than 8.0 miles south of the permit area. Therefore, the permit area is not considered to be within occupied sage-grouse habitat, and the SDGFP has not recommended grouse lek searches as part of the Dewey-Burdock annual monitoring program.

4.2.1.2 State Species

The bald eagle was the only state-listed species documented in the survey area during baseline inventories completed from 2007 through 2008, and annual monitoring efforts in 2013. The USFWS removed (delisted) the bald eagle from protection under the ESA in 2007 (72 FR 37345; July 9, 2007). However, this species is still classified as threatened in South Dakota, though its status is currently under evaluation for removal from the state list. Bald eagles also continue to be protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act, as well as any other applicable state regulations. Bald eagles were thoroughly discussed in Section 4.1.1 and Section 4.1.2.1, and are not described further in this section.

4.2.2 SDNHP Rare, Threatened, or Endangered Species

Ten SDNHP species were recorded during baseline wildlife surveys conducted for the Dewey-Burdock project from 2007 through 2008. Three new species were observed during annual monitoring conducted in 2013. Eleven of the 13 species documented to date were observed in or flying over the permit area, and 2 were recorded in the 1.0-mile perimeter. Only 1 of these 13 tracked species was not a bird; the plains topminnow [*Fundulus sciadicus*] was captured at locations outside the permit area during baseline surveys conducted in Beaver Creek and the Cheyenne River.

Table 3 lists the 83 avian species on the current SDNHP list (SDGFP 2014). The table also provides a record of each species' occurrence and status in the Dewey-Burdock survey area during both baseline surveys and 2013 annual monitoring efforts. No non-avian species on the current SDNHP list have been documented in the Dewey-Burdock survey area, to date.

Six avian SDNHP species were observed in the survey area during 2013: the bald eagle (S1B); golden eagle (*Aquila chrysaetos*) (S3B); ferruginous hawk (*Buteo regalis*) (S4B); prairie falcon (*Falco mexicanus*) (S3B); long-billed curlew (*Numenius americanus*) (S3B); and burrowing owl (S3B). The hawk, falcon, and owl were new records in 2013. An explanation of the state (S) ranking system is provided on the SDNHP website: gfp.sd.gov/wildlife/threatened-endangered. Bald eagles are discussed in Section 4.1.1 and Section 4.1.2.1. Burrowing owls are described in Section 4.1.2.2.

Golden eagles were recorded several times throughout the 2013 report period. An adult eagle was perched along Beaver Creek in the permit area in December 2012. One or two adult golden eagles were observed flying over a prominent ridge (Twentyone Divide) west of the survey area on multiple occasions from mid-February through mid-March, including one sighting of a courtship flight in early March. Individual sub-adult and adult golden eagles were seen soaring over or hunting (perched and soaring) the prairie dog colonies south of the survey perimeter in spring and mid-summer, respectively. Although golden eagles were observed doing courtship displays, no active nests were discovered within the survey area during 2013.

Ferruginous hawks were observed on three occasions in 2013. One adult was seen soaring over the small prairie dog colony south of the permit area on March 17. A hawk was noted flying over the larger colony in the western portion of the permit area that same day. An adult ferruginous hawk was observed perched on a power pole in the northwestern survey perimeter in mid-May.

The prairie falcon and long-billed curlew were each recorded once in the permit area during 2013. The falcon was seen flying over the large prairie dog colony in the western part of the area in late July. The bird appeared to have prey in its talons and flew northeast out of the area. Two long-billed curlews were documented flying over that same colony on June 5, and continued east out of the area. Although other species of concern could potentially occur in the Dewey-Burdock survey area, none were documented there during the 2013 report period.

4.3 Other Animals

Incidental sightings of animals not targeted by systematic searches were recorded during all wildlife surveys conducted in 2013, and are listed in Appendix I. Most species of note were mentioned in previous sections of this report.

The pronghorn (*Antilocapra americana*) and mule deer (*Odocoileus hemionus*) are the only two big game species that regularly occur in the Dewey-Burdock survey area, and both are considered year-round residents. Elk (*Cervus canadensis*) and white-tailed deer (*Odocoileus virginianus*) also are present, but only in small herds. The latter two species can be seen in the survey area year-round, but may be more common during certain seasons and certain habitats (e.g., pine breaks and cottonwood-riparian, respectively).

The mourning dove (*Zenaida macroura*) was the only upland game bird species documented in the Dewey-Burdock survey area (permit area and 1.0-mile perimeter) during the current report period. Mourning doves were observed on several occasions during the summer perched and flying in the large prairie dog colony in the western portion of the permit area. A small group of doves was seen flying and perched in trees near a homestead in the southeastern portion of the permit area in mid-July.

The coyote (*Canis latrans*) was the only mammalian predator noted in the Dewey-Burdock survey area in 2013. Adult coyotes were recorded twice in the vicinity of the large prairie dog colony in the western portion of the permit area; one was heard in that area in early June and another was seen walking there in late July. Two coyote pups were observed in that same colony in late December 2012. No active dens were documented in the area in 2013. The North American porcupine (*Erethizon dorsatum*) also was observed in a cottonwood tree in the permit area in December 2012.

Less common avian species recorded in the survey area during 2013, but not already discussed, included the turkey vulture (*Cathartes aura*), American kestrel (*Falco sparverius*), ring-billed gull (*Larus delawarensis*), upland sandpiper (*Bartramia longicauda*), American crow (*Corvus brachyrhychos*), red-headed woodpecker (*Melanerpes erythrocephalus*), and red crossbill (*Loxia curvirostra*). These species were seen or heard in, or flying over, the permit area or surrounding perimeter on one or more occasions from mid-March through late July, when site visits began to taper off as targeted surveys were completed for the year.

5.0 QUALIFICATIONS

The SDGFP has determined that TWC (formerly ICF Jones & Stokes) is an approved wildlife contractor for State required wildlife evaluations (SDGFP 2012 and 2014). All wildlife monitoring and extended observation sessions of nesting bald eagles were conducted by qualified, professional biologists with TWC, each having a minimum of 10 years of experience conducting intensive monitoring of eagle nests, among other pertinent experience. A current resume for the principal biologist (G. McKee) with TWC is on file with SDGFP.

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Table 1. Raptor nest locations, status, and productivity in the Dewey-Burdock permit area and 0.5-mile perimeter during baseline wildlife surveys conducted in 2008 and annual monitoring conducted in 2013.

Nest No.	Code	1/4	1/4	Sec	TWP	RGN	2008	2013
RTH1a*	PP	SE	NE	29	6S	1E	A,1+,1	A-T
RTH1b*	PP	SE	NE	29	6S	1E	ALT	ALT
RTH2*	CW	SE	SW	34	6S	1E	A,2,2	A-T
RTH3a	CW	NE	SE	28	41N	60W	I	D-N
RTH3b*	CW	SW	NW	30	6S	1E	---	I
RTH4	CW	SE	NW	9	7S	1E	---	A-T
RTH5*	CW	SE	SE	5	7S	1E	---	A-T
Red-tailed Hawk Subtotals:							2,3+,3	4,0,0
GHO1*	TC	SE	SE	5	7S	1E	A-T	I
Great Horned Owl Subtotals:							1,0,0	0
BE1a*	CW	SE	SW	30	6S	1E	A,1,1	ALT
BE1b*	CW	NE	NE	31	6S	1E	---	A,1,1
Bald Eagle Subtotals:							1,1,1	1,1,1
B1	CW	NE	SW	17	6S	1E	---	I
Unknown Buteo Subtotals:							0	0
LEO1*	PP	SE	SW	33	6S	1E	A,1+,1	D-N
Long-eared Owl Subtotals:							1,1+,1	0
BO1*	PDB	SW	SE	30	6S	1E	---	A,2+,2
Burrowing Owl Subtotals:							0	1,2+,2
M1*	PP	NW	SW	36	6S	1E	A,?,?	D-N
Merlin Subtotals:							1,?,?	0
GRAND TOTALS:							6,5+,5	6,3+,3

* Denotes nest within the Dewey-Burdock permit area.
X,#,# = Status, number of young hatched, number of young fledged.
In TOTALS rows #,#,# = total active territories, total young hatched, total young fledged.

Table 1. Continued.

Species Codes		
B	=	Unknown buteo
BE	=	Bald eagle
BO	=	Burrowing owl
GHO	=	Great horned owl
LEO	=	Long-eared owl
M	=	Merlin
RTH	=	Red-tailed hawk

Nest Substrate Codes		
CW	=	Cottonwood
PDB	=	Prairie dog burrow
PP	=	Ponderosa pine
TC	=	Tree Cavity

Nest Status Codes		
A	=	Active
ALT	=	Alternate nest
A-T	=	Active-tended, no eggs laid
D-N	=	Destroyed, natural causes
I	=	Inactive
---	=	Nonexistent or undiscovered
?	=	Unknown

Table 2. Annual productivity (number of young fledged) of raptors actively nesting[1] in the Dewey-Burdock survey area during baseline wildlife surveys conducted in 2008 and annual monitoring conducted in 2013.

Year	Red-tailed hawk	Bald eagle	Long-eared owl	Burrowing Owl	Total
2008	3	1	1	---	5
2013	---	1	---	2	3
TOTAL	3	2	1	2	8

[1] Active nesting refers to egg laying and incubation vs. just adding new material to a nest (A-T).
--- No known active nesting.

Table 3. Threatened, endangered, and rare avian species[1] tracked by the South Dakota Natural Heritage Program – South Dakota Department of Game, Fish and Parks, and observed in or within 1.0 mile of the Dewey-Burdock permit area during baseline wildlife surveys completed from 2007 through 2008, and annual monitoring conducted in 2013.

Species	Historical Occurrence (2007-2008, 2013)[2]	2007	2008	2013
Common loon *Gavia immer*	Never Recorded	---	---	---
Horned grebe *Podiceps auritus*	Never Recorded	---	---	---
Red-necked grebe *Podiceps grisegena*	Never Recorded	---	---	---
Clark's grebe *Aechmophorus clarkii*	Never Recorded	---	---	---
American white pelican* *Pelecanus erythrorhynchos*	Observed	---	Su-R	---
Least bittern *Ixobrychus exilis*	Never Recorded	---	---	---
Great blue heron* *Ardea herodias*	Observed	---	Sp-M	---
Great egret *Casmerodius albus*	Never Recorded	---	---	---
Snowy egret *Egretta thula*	Never Recorded	---	---	---
Little blue heron *Egretta caerulea*	Never Recorded	---	---	---
Tricolored heron *Egretta tricolor*	Never Recorded	---	---	---
Green heron *Butorides virescens*	Never Recorded	---	---	---
Black-crowned night-heron *Nycticorax nyctricorax*	Never Recorded	---	---	---
Yellow-crowned night-heron *Nyctanassa violacea*	Never Recorded	---	---	---
White-faced ibis *Plegadis chihi*	Never Recorded	---	---	---
Trumpeter swan *Cygnus buccinator*	Never Recorded	---	---	---
Bufflehead *Bucephala albeola*	Never Recorded	---	---	---
Hooded merganser *Lophodytes cucullatus*	Never Recorded	---	---	---
Common merganser *Mergus merganser*	Never Recorded	---	---	---
Osprey *Pandion haliaetus*	Never Recorded	---	---	---

Table 3. Continued.

Species	Historical Occurrence (2007-2008, 2013)[2]	2007	2008	2013
Bald eagle* *Haliaeetus leucocephalus*	Nesting	Wi-R	Su-B, Wi-R	Su-B, Wi-R
Sharp-shinned hawk *Accipiter striatus*	Never Recorded	---	---	---
Cooper's hawk* *Accipiter cooperii*	Observed	---	Su-R	---
Northern goshawk *Accipiter gentilis*	Never Recorded	---	---	---
Broad-winged hawk *Buteo platypterus*	Never Recorded	---	---	---
Swainson's hawk *Buteo swainsoni*	Never Recorded	---	---	---
Ferruginous hawk* *Buteo regalis*	Observed	---	---	Sp-M
Golden eagle* *Aquila chrysaetos*	Observed	Wi-R	Su-R	Su-R
Merlin* *Falco columbarius*	Nesting	Su-R	Su-B	---
Peregrine falcon *Falco peregrinus*	Never Recorded	---	---	---
Prairie falcon* *Falco mexicanus*	Observed	---	---	Su-R
Yellow rail *Coturncops noveboracensis*	Never Recorded	---	---	---
King rail *Rallus elegans*	Never Recorded	---	---	---
Whooping crane *Grus americana*	Never Recorded	---	---	---
Piping plover *Charadrius melodus*	Never Recorded	---	---	---
Mountain plover *Charadrius montanus*	Never Recorded	---	---	---
Black-necked stilt *Himantopus mexicanus*	Never Recorded	---	---	---
Eskimo curlew *Numenius borealis*	Never Recorded	---	---	---
Long-billed curlew* *Numenius americanus*	Nesting	---	Su-B	Su-R
American woodcock *Scolopax minor*	Never Recorded	---	---	---
California gull *Larus californicus*	Never Recorded	---	---	---
Caspian tern *Hydroprogne caspia*	Never Recorded	---	---	---

Table 3. Continued.

Species	Historical Occurrence (2007-2008, 2013)[2]	2007	2008	2013
Common tern *Sterna hirundo*	Never Recorded	---	---	---
Interior Least tern *Sterna antillarum athalassos*	Never Recorded	---	---	---
Black tern *Chlidonias niger*	Never Recorded	---	---	---
Barn owl *Tyto alba*	Never Recorded	---	---	---
Burrowing owl* *Athene cunicularia*	Nesting	---	---	Su-B
Long-eared owl* *Asio otus*	Nesting	---	Su-B	---
Northern saw-whet owl *Aegolius acadicus*	Never Recorded	---	---	---
Flammulated owl *Otus flammeolus*	Never Recorded	---	---	---
Common poorwill *Phalaenoptilus nattallii*	Never Recorded	---	---	---
Chuck-will's-widow *Caprimulgus caronlinensis*	Never Recorded	---	---	---
Whip-poor-will *Caprimulgus vociferus*	Never Recorded	---	---	---
Ruby-throated hummingbird *Archilochus colubris*	Never Recorded	---	---	---
Lewis' woodpecker Melanerpes lewis	Never Recorded	---	---	---
Three-toed woodpecker *Picoides tridactylus*	Never Recorded	---	---	---
Black-backed woodpecker *Picoides arcticus*	Never Recorded	---	---	---
Pileated woodpecker *Dryocopus pileatus*	Never Recorded	---	---	---
Olive-sided flycatcher *Contopus cooperi*	Never Recorded	---	---	---
Cassin's kingbird *Tyrannus vociferans*	Never Recorded	---	---	---
Clark's nutcracker *Nucifraga columbiana*	Observed Once	---	Su-R	---
Pygmy nuthatch *Sitta pygmaea*	Never Recorded	---	---	---
Brown creeper *Certhia americana*	Never Recorded	---	---	---
American dipper *Cinclus mexicanus*	Never Recorded	---	---	---

Table 3. Continued.

Species	Historical Occurrence (2007-2008, 2013)[2]	2007	2008	2013
Blue-gray gnatcatcher *Polioptila caerulea*	Never Recorded	---	---	---
Veery *Catharus fuscescens*	Never Recorded	---	---	---
Wood thrush *Hylocichla mustelina*	Never Recorded	---	---	---
Northern mockingbird *Mimus polyglottos*	Never Recorded	---	---	---
Sage thrasher *Oreoscoptes montanus*	Never Recorded	---	---	---
Sprague's pipit *Anthus spragueii*	Never Recorded	---	---	---
Yellow-throated vireo *Vireo flavifrons*	Never Recorded	---	---	---
Black-and-white warbler *Mniotilta varia*	Never Recorded	---	---	---
Cerulean warbler *Setophaga cerulea*	Never Recorded	---	---	---
Virginia's warbler *Vermivora virginiae*	Never Recorded	---	---	---
Scarlet tanager *Piranga olivacea*	Never Recorded	---	---	---
Brewer's sparrow *Spizella breweri*	Never Recorded	---	---	---
Baird's sparrow *Ammodramus bairdii*	Never Recorded	---	---	---
Henslow's sparrow *Ammodramus henslowii*	Never Recorded	---	---	---
Le Conte's sparrow *Ammodramus leconteii*	Never Recorded	---	---	---
Nelson's sparrow[3] *Ammodramus nelsoni*	Never Recorded	---	---	---
McCown's longspur *Rhynchophanes mccownii*	Never Recorded	---	---	---
Eastern meadowlark *Sturnella magna*	Never Recorded	---	---	---
Cassin's finch *Carpodacus cassinii*	Never Recorded	---	---	---

[1] Avian species tracked by the South Dakota Natural Heritage Program – South Dakota Department of Game, Fish and Parks (SDGFP web page: Last modified November 26, 2012; accessed March 4, 2014).
[2] Historical Occurrence is based on records from baseline surveys completed from 2007-2008, and annual monitoring surveys conducted at the Dewey-Burdock project in 2013.
[3] Formerly the sharp-tailed sparrow; split into the Nelson's sparrow several years ago.
* Species observed in the Dewey-Burdock permit area.
Sp-M = Spring Migrant; observed from March through May.
Su-B = Summer Breeder; observed from June through August and showed signs of breeding (nest or young observed, territorial males observed, pair carrying nesting materials).
Su-R = Summer Resident; observed from June through August but no evidence of breeding observed.
Wi-R = Winter Resident; observed from December through February.

APPENDIX I

Dewey-Burdock Project
Observed Wildlife Species List

2013 WILDLIFE MONITORING REPORT: APPENDIX I
DEWEY-BURDOCK PROJECT
OBSERVED WILDLIFE SPECIES LIST

MAMMALS

	2007	2008	2013
HARES AND RABBITS			
Cottontail species *Sylvilagus* spp.	X		X
White-tailed jackrabbit *Lepus townsendii*	X		
RODENTS			
Black-tailed prairie dog *Cynomys ludovicianus*	X*	X*	X*
Deer mouse *Peromyscus maniculatus*	X*		
Olive-backed pocket mouse *Perognathus fasciatus*	X*		
Western harvest mouse *Reithrodontomys megalotis*	X*		
Northern grasshopper mouse *Onychomys leucogaster*	X*		
Porcupine *Erethizon dorsatum*			X*
CARNIVORES			
Coyote *Canis latrans*	X*	X*	X*
Northern river otter† *Lontra canadensis*		X	
UNGULATES			
Mule deer *Odocoileus hemionus*	X*	X*	
White-tailed deer *Odocoileus virginianus*	X*	X*	
Pronghorn *Antilocapra americana*	X*	X*	X
Elk *Cervus elaphus*		X	

* Observed in or flying over the Dewey-Burdock permit area; other species recorded in 1.0-mile perimeter.
† Species tracked by the South Dakota Natural Heritage Program – South Dakota Department of Game, Fish and Parks (SDGFP web page, accessed March 4, 2014).

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BIRDS

	2007	2008	2013
PELICANS			
American white pelican† *Pelecanus erythrothynchos*		X*	
BITTERNS, HERONS AND IBISES			
Great blue heron† *Ardea herodias*		X*	
GEESE AND DUCKS			
Canada goose *Branta canadensis*		X*	
Mallard *Anas platyrhynchos*		X*	X*
American wigeon *Anas americana*		X*	
DIURNAL RAPTORS			
Turkey vulture *Cathartes aura*		X*	X*
Bald eagle† *Haliaeetus leucocephalus*	X*	X*	X*
Golden eagle† *Aquila chrysaetos*	X*	X*	X*
Northern harrier *Circus cyaneus*	X*	X*	
Cooper's hawk† *Accipiter cooperii*		X*	
Red-tailed hawk *Buteo jamaicensis*	X*	X*	X*
Ferruginous hawk† *Buteo regalis*			X*
Rough-legged hawk *Buteo lagopus*	X*		
American kestrel *Falco sparverius*	X*	X*	X*
Merlin† *Falco columbarius*	X*	X*	
Prairie falcon† *Falco mexicanus*			X*
GALLINACEOUS BIRDS			
Wild turkey *Meleagris gallopavo*	X*	X*	

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BIRDS

	2007	2008	2013
SHOREBIRDS, AVOCETS, GULLS AND TERNS			
Killdeer *Charadrius vociferus*	X*	X*	X*
Upland sandpiper *Bartramia longicauda*		X*	X*
Long-billed curlew† *Numenius americanus*		X*	X*
Ring-billed gull *Larus delawarensis*			X*
PIGEON AND DOVES			
Mourning dove *Zenaida macroura*	X*	X*	X*
OWLS			
Great horned owl *Bubo virginianus*	X*	X*	X*
Burrowing owl† *Athene cunicularia*			X*
Long-eared owl† *Asio otus*		X*	
GOATSUCKERS			
Common nighthawk *Chordeiles minor*		X*	X*
WOODPECKERS			
Red-headed woodpecker *Melanerpes erythrocephalus*		X*	X*
Northern flicker *Colaptes auratus*	X*	X*	X*
FLYCATCHERS			
Western wood-pewee *Contopus sordidulus*		X*	
Say's phoebe *Sayornis saya*		X*	X*
Western kingbird *Tyrannus verticalis*		X*	X*
Eastern kingbird *Tyrannus tryannus*		X*	X*

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BIRDS

	2007	2008	2013
LARKS			
Horned lark *Eremophila alpestris*			X*
SWALLOWS			
Violet-green swallow *Tachycineta thalassina*			X*
Cliff swallow *Hirundo pyrrhonota*			X*
JAYS, MAGPIES AND CROWS			
Clark's nutcracker† *Nucifraga columbiana*		X*	
American crow *Corvus brachyrhynchos*		X*	X*
CHICKADEES			
Black-capped chickadee *Parus atricapillus*		X*	X*
WRENS			
Rock wren *Salpinctes obsoletus*		X*	
House wren *Troglodytes aedon*		X*	
GNATCATCHERS AND THRUSHES			
Mountain bluebird *Sialia currocoides*		X*	X
American robin *Turdus migratorius*		X*	
STARLINGS			
European starling *Strunus vulgaris*		X*	
WARBLERS			
Yellow warbler *Setophaga petechia*		X*	
Yellow-rumped warbler *Setophaga coronata*		X*	
Yellow-breasted chat *Icteria virens*		X*	

2013 WILDLIFE MONITORING REPORT: APPENDIX I
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OBSERVED WILDLIFE SPECIES LIST

BIRDS

	2007	2008	2013
GROSBEAKS AND BUNTINGS			
Lazuli bunting *Passerina amoena*		X*	
Indigo bunting *Passerina cyanea*		X*	
SPARROWS AND TOWHEES			
Spotted towhee *Pipilo maculatus*		X*	
Chipping sparrow *Spizella passerina*		X*	X
Vesper sparrow *Pooecetes gramineus*		X*	
Lark sparrow *Chondestes grammacus*		X*	X*
Lark bunting *Calamospiza melanocorys*			X*
Grasshopper sparrow *Ammodramus savannarum*		X*	
BLACKBIRDS, MEADOWLARKS AND ORIOLES			
Red-winged blackbird *Agelaius phoneniceus*	X*	X*	X*
Western meadowlark *Sturnella neglecta*	X*	X*	X*
Brewer's blackbird *Euphagus cyanocephalus*		X*	
Brown-headed cowbird *Molothrus ater*		X*	
Bullock's oriole *Icterus bullockii*		X*	
FINCHES			
Red crossbill *Loxia curvirostra*			X*
OLD WORLD SPARROWS			
House sparrow *Passer domesticus*			X*

* Observed in or flying over the Dewey-Burdock permit area; other species recorded in 1.0-mile perimeter.
† Species tracked by the South Dakota Natural Heritage Program – South Dakota Department of Game, Fish and Parks (SDGFP web page, accessed March 4, 2014).

2013 WILDLIFE MONITORING REPORT: APPENDIX I
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AMPHIBIANS AND REPTILES

	2007	2008	2013
TRUE TOADS			
Great Plains toad† *Bufo cognatus*	X*	X*	
Woodhouse's toad *Bufo woodhousei*	X*	X*	
TREE FROGS			
Boreal chorus frog *Pseudacris triseriata*	X*	X*	
TURTLES			
Western painted turtle *Chrysemys picta*	X*	X*	

* Observed in or flying over the Dewey-Burdock permit area; other species recorded in 1.0-mile perimeter.
† Species tracked by the South Dakota Natural Heritage Program – South Dakota Department of Game, Fish and Parks (SDGFP web page, accessed March 4, 2014).

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Dewey-Burdock Project

Figure 1: 2013 Wildlife Features

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